REMARKS

I. Status of the Claims

Claims 1 - 8 have been examined and stand rejected on various grounds.

II. Rejections Under 35 U.S.C. §102

The Examiner rejected claims 1 - 4, and 8 as being anticipated by U.S. Patent No. 5,718,117 to McDunn et al. According to the Examiner, Moresco describes all of the claimed features recited in claims 1 - 4, and 8. The Applicant respectfully disagrees for the following reasons. The Applicant also wishes to take this opportunity to acknowledge in appreciation the Examiner's action in not making his last communication a final office action.

A) Claim 1

Claim 1 is directed to a printed circuit board assembly that minimizes parts and weight to enable ***immersion cooling*** of semiconductor devices mounted on the boards. In other words, the claimed assembly having two PCBs are disposed in close confronting proximity, and cooperating with a peripheral border with a liquid inlet and outlet is specifically adapted for immersion cooling applications.

With the immersion cooling aspect in mind, and the claimed structure that enables the use of immersion cooling, McDunn describes a completely different way to cool PCBs with an evaporative spraying technique and associated infrastructure. As explained in McDunn, evaporative spray cooling involves spraying atomized fluid droplets directly onto the surface of a heat source. When the fluid droplets impinge upon the modules surface, a thin film of fluid coats the module and the heat is removed primarily by evaporation.

Immersion cooling, on the other hand, as understood to those skilled in the art, involves immersing the electronics in a nonconductive liquid bath for very high-capacity cooling.

Moreover, McDunn does not place his circuit boards in confronting relationship with each other. Rather, he places a third board that mounts the sprayers between the two circuit boards. As a result, each circuit board confronts one side of the spray-cooling infrastructure board, not the other circuit board.

Additionally, McDunn fails to disclose the claimed border that allows the two boards to cooperate to form a sealed enclosure. Instead, McDunn employs a rack-type housing or chassis 60 to completely house a large number of circuit boards and the entire cooling infrastructure. For these reasons, claim 1 is believed allowable over McDunn.

Because claims 2 - 4 depend directly and indirectly from claim 1, these claims are also believed to be allowable over the cited art, and reconsideration is respectfully requested.

B) Claim 8

As noted above, McDunn cools his boards with an evaporative spray approach. While his method involves spraying, and evaporating, it does not disclose nor suggest the claimed step of "immersing" which is made possible by the unique structure claimed in claim 1. For this reason, claim 8 is believed allowable over the cited art.

III. Rejections Under 35 U.S.C. §103

The Office Action identified rejections to claims 5 through 7 under 35 U.S.C. 103 as being unpatentable over McDunn in view of Black (U.S. Patent No. 4,749,943).

As explained above, McDunn has little relevance to constructions that provide for immersion cooling techniques. Although the Applicant has previously explained why Black has little relevance to the invention claimed in claim 5, there are other reasons that have not been previously identified.

It's important to understand that claims 5 through 7 are directed to automatic test systems, such as semiconductor testers, that include testheads for delivering test signals proximate devices-under-test. The testheads comprise card-cage-like structures that

house the channel cards, or instrument boards, that generate the test signals. A manipulator typically places the testhead in contact with the devices.

The point to understand is that the electronics within the testhead (mounted on circuit boards) get hotter as the devices get faster and more power hungry. The invention of claim 5 deals with how to cool those boards (through immersion cooling) within the testhead that make up an important part of the tester. Black fails to disclose any of the boards inside his test head, much less how to cool them. There is no motivation whatsoever in Black to employ the spray evaporative cooling techique of McDunn because his disclosure doesn't deal with cooling in any way.

Even if the disclosures of Black and McDunn are combined, they still don't disclose or suggest the claimed structures adapted for immersion cooling explained above.

Because claims 6 and 7 depend from claim 5, these claims are believed allowable over the cited art for the same reasons that apply to claim 5.

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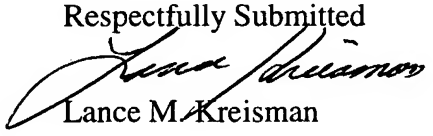
Respectfully Submitted



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